

CLAIMS

1. An actuator comprising:

an electric motor;

5 a screw shaft connected to a rotational shaft of the electric motor in such a manner as to be capable of transmitting power;

10 a nut member disposed on periphery of the screw shaft and connected to the rotational shaft of the electric motor in such a manner as to be capable of transmitting the power; and

15 a ball rolling within a spiral groove formed between the screw shaft and the nut member,

characterized in that the rotational speed of the screw shaft and the rotational speed of the nut member are different.

2. The actuator as set forth in Claim 1, characterized in that the screw shaft and the nut member rotate in the same direction.

25 3. The actuator as set forth in Claim 1 or 2, characterized in that one of the screw shaft and the nut member is made stationary with respect to an axial direction, and the other is allowed to move in the axial

direction.

4. An actuator as set forth in any of Claims 1 to 3, characterized in that a first gear and a second gear, 5 which have different numbers of teeth from each other, are integrally formed on the rotational shaft of the electric motor, and

a third gear and a fourth gear are integrally formed, respectively, on the screw shaft and the nut member, 10 whereby the first and second gears mesh with the third and fourth gears, respectively.

5. An actuator as set forth in Claim 4, characterized in that a facewidth of the first gear and a facewidth 15 of the second gear are different from each other.

6. An actuator as set forth in Claim 5, characterized in that one of the screw shaft and the nut member is made stationary with respect to the axial direction, whereas 20 the other is allowed to move in the axial direction, and

in that of the first gear and the second gear, the facewidth of the gear which meshes with the gear formed integrally on the member which is allowed to move in the axial direction is longer than the facewidth of the other 25 gear.

7. An actuator as set forth in Claims 4 to 6, characterized in that at least either the gear integrally formed on the member which is allowed to move in the axial 5 direction or the gear on the rotational shaft which mesh with the gear is made from a resin.

8. An actuator as set forth in Claims 3 to 7, characterized in that a member to be driven is mounted 10 on the member which is allowed to move in the axial direction via a thrust bearing.

9. An actuator as set forth in Claim 8, characterized in that the member to be driven is a brake pad.

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10. An electric brake system characterized in that a caliper is made up of the actuator set forth in Claim 9.

20 11. A brake system characterized by usage of the actuator set forth in any of Claims 1 to 3.